WHAT IS CLAIMED IS:

1. An apparatus for energizing a plasma within a semiconductor fabrication system by coupling energy into the plasma, the apparatus comprising:

a semiconductor fabrication chamber having a first wall at least partially defining a plasma containment region;

a coil having a first face facing said plasma containment region and a second face facing said first wall, said second face defining a fastener recess extending partially through said coil; and

a fastener member adapted to fasten said coil to said first wall wherein said coil second face fastener recess is adapted to receive said fastener member.

2. The apparatus of claim 1 wherein said fastener member is a bolt and said fastener recess is a threaded bore.

3. The apparatus of claim 1 wherein said coil second face includes a protruding member integral with said coil and defining said fastener recess.

4. The apparatus of claim 3 wherein said protruding member is welded to said coil second face.

5. The apparatus of claim 3 wherein said fastener member is a bolt and said fastener recess is a threaded bore.

6. The apparatus of claim 5 further comprising a first insulating member positioned around said bolt between said first wall and said bolt to electrically insulate said bolt from said first wall.

7. The apparatus of claim 6 wherein said first insulating member comprises an aluminum nitride material.

8. The apparatus of claim 6 wherein said protruding member defines a recess positioned to receive one end of said first insulating member, said recess being of sufficient size to define a first passageway between said protruding member and said first insulating member end.

9. The apparatus of claim 8 further comprising a conductive cup-shaped member attached to said first wall and defining a recess positioned to receive one end of said protruding member spaced from said cup-shaped member to define a second passageway between said protruding member and said cup-shaped member.

10. The apparatus of claim 9 wherein said cup-shaped member defines an opening positioned to receive the other end of said first insulating member and to electrically insulate said bolt from said cup-shaped member.

11. The apparatus of claim 6 further comprising a retainer plate which defines an opening adapted to receive a portion of said first insulating member wherein said first wall defines a recess adapted to receive said retainer plate.

12. The apparatus of claim 11 wherein said bolt has a head, said apparatus further comprising a second insulating member positioned around said bolt between said retainer plate and said bolt head to insulate said bolt from said retainer plate.

13. The apparatus of claim 12 further comprising a bushing positioned around said bolt and between said second insulating member and said bolt head.

14. The apparatus of claim 12 further comprising a third generally cap-shaped insulating member positioned around said bolt head to insulate said bolt head.

15. The apparatus of claim 1 wherein said second insulating member has a retention flange and said third insulating member has a recess positioned to receive said third insulating member flange to retain said third insulating member around said bolt head.

16. The apparatus of claim 1 wherein said first and second coil faces are oriented vertically and said coil has a beveled edge to define a nonvertical, nonhorizontal flat face between said first and second faces.

17. The apparatus of claim 1 further comprising a source of RF energy coupled to said fastener member to provide RF energy to said coil.

18. The apparatus of claim 2 wherein said bolt has a head, said apparatus further comprising a second insulating member positioned around said bolt head to insulate said bolt from said first wall.

19. The apparatus of claim 18 wherein the system includes a source of RF energy, said apparatus further comprising an RF conductor member adapted to couple RF energy from said RF source to said bolt head to provide RF energy to said coil, wherein said second insulating member is positioned between said conductor member and said first wall to insulate said conductor member from said first wall.

20. The apparatus of claim 1 further comprising a target adapted to provide sputtered deposition material and a substrate holder positioned to hold a substrate to receive said sputtered deposition material from said target.

21. The apparatus of claim 1 wherein said first wall is a generally cylindrical shield wall positioned between said target and said substrate holder.

22. A kit for a semiconductor fabrication chamber, comprising:

a generally cylindrical shield wall defining a plurality of apertures and a plurality of recesses, each recess being positioned adjacent an associated aperture;

a generally circular RF coil having an outer face facing said shield wall, said coil further having a plurality of hub members extending integrally from said outer face, each hub member defining a threaded bore extending partially through said coil hub member of said coil; and

a plurality of standoffs fastened to an associated coil hub member, each standoff comprising

a bolt extending through a shield wall aperture and having a head on one side of the shield wall and a threaded end on the other side of the shield wall and threaded into a threaded bore of the associated coil hub member; and

a first generally cylindrical aluminum nitride insulating member being positioned around said bolt between said shield wall and said bolt to electrically insulate said bolt from said shield wall, wherein said hub member defines an annular recess positioned to receive one end of said first insulating member, said hub member recess being of sufficient size to define

a passageway between said protruding member and said first insulating member end.

23. The kit of claim 22 wherein each standoff further comprises a second generally cylindrical insulating member positioned around said bolt between said shield wall and said bolt head to electrically insulate said bolt from said shield wall.

24. The kit of claim 23 wherein each standoff further comprises a retainer plate which defines an opening positioned to receive a portion of said first insulating member wherein an associated shield wall recess is positioned to receive said retainer plate and wherein said second insulating member is positioned to insulate said bolt from said retainer plate, each standoff further comprising a bushing positioned around said bolt and between said second insulating member and said bolt head.

25. The kit of claim 23 wherein an associated shield wall recess is positioned to receive said second insulating member.

26. The kit of claim 22 further comprising a conductor bar which defines an opening adapted to receive said bolt, said conductor bar being adapted to be coupled to a source of RF energy, wherein said second insulating member is positioned between said conductor bar and said shield wall to electrically insulate said conductor bar from said shield wall.

27. An apparatus for energizing a plasma within a semiconductor fabrication system by coupling energy into the plasma, the apparatus comprising:

a semiconductor fabrication chamber having a first wall at least partially defining a plasma containment region;

a coil having a first face facing said plasma containment region and a second face facing said first wall, said second face including a protruding member integral with said coil; and

a fastener adapted to fasten said coil protruding member to said first wall.

28. The apparatus of claim 27 wherein said fastener comprises a threaded bolt and said coil protruding member defines a threaded bore adapted to threadably receive said bolt.

29. A coil for energizing a plasma within a semiconductor fabrication chamber having a first wall at least partially defining a plasma containment region, the coil comprising:

an elongated coil member having a first face adapted to face said plasma containment region and a second face adapted to face said first wall when installed in said chamber, said second face including a protruding coupler member integral with said coil.

30. An apparatus for energizing a plasma within a semiconductor fabrication system by coupling energy into the plasma, the apparatus comprising:

a semiconductor fabrication chamber having a first wall at least partially defining a plasma containment region;

a standoff carried by said first wall; and

a coil carried by said standoff, said coil being adapted to inductively couple RF energy into said plasma;

wherein said standoff includes an aluminum nitride insulative member positioned to electrically insulate said coil from said first wall and to thermally couple said coil to said first wall.

31. A method of fastening an RF coil to a shield wall for a semiconductor fabrication chamber, the method comprising:

placing an insulative member around a fastener member;

inserting the fastener member through an aperture in said shield wall; and

fastening said fastener member to a fastener recess defined by an outer face of said coil and extending partially through said coil.

32. A method of fastening an RF coil to a shield wall for a semiconductor fabrication chamber, the method comprising:

placing an insulative member around a fastener member;

inserting the fastener member through an aperture in said shield wall; and

fastening said fastener member to a protruding member extending integrally from an outer face of said coil.

33. A method of fastening an RF coil to a shield wall for a semiconductor fabrication chamber, the method comprising:

placing a first generally cylindrical aluminum nitride insulating member in an annular recess defined by a hub member extending integrally from an outer face of a generally circular coil;

placing a second generally cylindrical insulative member around a threaded bolt;

inserting the threaded bolt through an aperture in said shield wall so that said second insulative member is positioned between said bolt and an outer side of said shield wall; and

threading said threaded bolt into a threaded bore of a hub member extending integrally from an outer face of said coil so that said first insulating member is positioned between said bolt and an interior side of said shield wall.

34. The method of claim 33 further comprising positioning a retainer plate in a recess on the outer side of said shield wall, and passing a portion of said first insulating member through an opening defined by said retainer plate wherein said second generally cylindrical insulating member is positioned around said bolt between said retainer plate and said bolt head to insulate said bolt from said retainer plate.

35. The method of claim 34 further comprising positioning a bushing around said bolt and between said second insulating member and said bolt head.

36. The method of claim 33 further comprising positioning said second insulating member in a recess of the shield wall.

37. The method of claim 36 further comprising passing the threaded bolt through an opening defined by a conductor bar, said conductor bar being adapted to be coupled to a source of RF energy, and positioning said second insulating member between said conductor bar and said shield wall to insulate said conductor bar from said shield wall.

38. An apparatus for energizing a plasma within a semiconductor fabrication system by coupling energy into the plasma, the apparatus comprising:

a semiconductor fabrication chamber having a first wall at least partially defining a plasma containment region;

a coil having a first face facing said plasma containment region and a second face facing said first wall, said second face including a protruding member integral with said coil; and

fastener means for insulatively fastening said coil protruding member to said first wall.